

REMARKS

Applicants acknowledge receipt of an Office Action dated January 19, 2007. In this response, Applicants have cancelled claims 1-4 without prejudice or disclaimer. Applicants expressly reserve the right to pursue the subject matter of claims 1-4 in one or more continuing, divisional, and/or reissue applications.

Following entry of these amendments, claims 5-11 remain pending in the application. Claims 7-11 have been withdrawn from consideration as being drawn to a non-elected species/invention. Accordingly, claims 5-6 are currently pending and under consideration.

In response to the PTO's restriction requirement, Applicants noted that, to the extent that upon allowance of claims to the elected compositions, Applicants should be entitled to article of manufacture claims that include the subject matter of the allowed claims; and upon any rejection of the elected claims, the PTO should also consider the claims of Group II, to the extent that the cited prior art shows that "the species are [not] patentably distinct." Further, Applicants noted that they would be entitled to rejoinder of method claims (Group III) in accordance with the practice of MPEP 821.04 and *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995).

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Rejection Under 35 U.S.C. §112, First Paragraph

On page 3 of the Office Action, the PTO has rejected claims 1-6 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. Applicants respectfully traverse this rejection for the reasons set forth below.

As an initial matter and although Applicants traverse this rejection, Applicants note that claims 1-4 have been cancelled without prejudice or disclaimer. Accordingly, the rejection of these claims under §112 is moot.

With regard to the phrase "a thermoplastic resin other than a fluororesin" which appears in claims 5 and 6, Applicants wish to direct the PTO's attention to the reference to "general fluororesins" at line 2 at the top of page 8 of the Specification. Applicants

respectfully request reconsideration and withdrawal of the outstanding rejections under §112, first paragraph, in view of the cited passage in the Specification.

Rejection Under 35 U.S.C. §102

On page 3 of the Office Action, the PTO has rejected claims 1-4 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent 5,985,949 to Seguchi (hereafter "Seguchi").

While Applicants maintain their traversal of the §102 rejection based upon Seguchi, for the reasons set forth in their previous response, and in the interest of expediting prosecution of the present application, Applicants have cancelled claims 1-4 without prejudice or disclaimer.

Accordingly, the rejection of claims 1-4 under §102 based upon Seguchi is now moot.

Rejections Under 35 U.S.C. §103 – Seguchi/JP ‘965

On page 4 of the Office Action, the PTO has rejected claim 5 under 35 U.S.C. §103(a) as allegedly being unpatentable over Seguchi in view of JP 63/179965 (hereafter "JP ‘965"). Applicants respectfully traverse this rejection for the reasons set forth below.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Here, Applicants submit that Seguchi and JP ‘965 fail to teach or suggest a combination of a thermoplastic resin composition with a lubricating oil "wherein the thermoplastic resin has a surface energy ranging from a first value of [a surface energy of the lubricating oil + 0] N/cm to a second value of [the surface energy of the lubricating oil + 20 x 105] N/cm" as recited in claim 5. Accordingly, the combination of Seguchi and JP ‘965

cannot properly render claim 5 obvious within the meaning of §103 and the rejection based upon Seguchi and JP '965 ought to be withdrawn.

With the presently claimed surface energy, the thermoplastic resin exhibits a good wettability for lubricating oil, thereby extending a fluid lubrication region during sliding. Additionally, the claimed surface energy improves the oil film maintainability of the thermoplastic resin, thereby further lowering the frictional resistance. This extension of the fluid lubrication region makes it possible to lower the frictional resistance even under severe sliding conditions. In general, the surface energy of the thermoplastic resin and the friction coefficient are in correlation to each other so that the friction coefficient increases as the surface energy becomes larger. Here, Applicants claimed surface energy range maximizes the reduction in the frictional coefficient observed by Applicants.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the outstanding rejection of claim 5 under §103.

Rejections Under 35 U.S.C. §103 – Yamamoto/Seguchi

On page 4 of the Office Action, the PTO has rejected claims 1-2 and 6 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent 6,552,099 to Yamamoto (hereafter “Yamamoto”) in view of Seguchi. Applicants respectfully traverse this rejection for the reasons set forth below.

As an initial matter, Applicants note that claims 1-2 have been cancelled without prejudice or disclaimer in order to expedite prosecution by narrowing the number of issues before the PTO. Accordingly the rejection of claims 1-2 under §103 based upon Yamamoto and Seguchi is now moot.

Turning to claim 6, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable

expectation of success must both be found in the prior art, not in Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Here, Applicants submit that Yamamoto and Seguchi fail to teach or suggest a resinous material "wherein at least a part of the active end groups of the fluororesin is chemically bonded with an atom forming part of the thermoplastic resin by kneading both the thermoplastic resin and fluororesin upon heating both the thermoplastic resin and the fluororesin to a temperature close to melting points of the thermoplastic resin and the fluororesin and upon applying a vacuum-suction to both the thermoplastic resin and the fluororesin" as recited in claim 6. Accordingly, the combination of Yamamoto and Seguchi cannot properly render claim 6 obvious within the meaning of §103 and the rejection based upon Yamamoto and Seguchi ought to be withdrawn.

Significant advantages gained by the above quoted feature of claim 6 feature will be discussed. The fluororesin itself is provided with the active end group which can readily produce radicals under the action of thermal energy. Upon exposure to thermal energy, the active end group of the fluororesin and the reaction point (a functional group or the like) of the thermoplastic resin are chemically joined (for example, under the action of heat during forming or molding of the thermoplastic resin composition). This increases the adhesion between the thermoplastic resin and the fluororesin. In order to sufficiently increase the adhesiveness, it is preferable to heat both the thermoplastic resin and the fluororesin to a temperature close to their melting points during kneading (for example, using an extruder), and simultaneously to applying a vacuum-suction to the inside of the extruder. Such heating of the thermoplastic resin and the fluororesin to a temperature close to their melting points during kneading causes the transformation of the active end group of the fluororesin thereby producing radicals. The end group having the radicals reacts with the reaction point (functional group) of the thermoplastic resin, the reaction point having been increased in activity under the action of temperature so that they are chemically joined with each other. Additionally, the above heating causes both the thermoplastic resin and the fluororesin to be sufficiently plasticized thereby enabling them to be readily mixed. This increases the frequency of joining between the active end group of the fluororesin and the reaction point (functional group) of the thermoplastic resin thereby improving the adhesiveness between them. Here, vacuum-suction is applied in order to suppress a reduction in the beneficial

effect of the radicals produced upon transformation of the active end group of the fluororesin. The reduction in beneficial effect is caused by combination of the radicals with oxygen.

By improving the adhesiveness between the thermoplastic resin and the fluororesin, the fluororesin can be prevented from being removed even under severe sliding conditions, and therefore the thermoplastic resin composition obtained from the thermoplastic resin and the fluororesin can exhibit good wear resistance.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the outstanding rejection of claim 6 under §103.

CONCLUSION

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By



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